

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

(25)

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification⁶: C12N 5/00, 5/04, 15/00, 15/09, 15/29, 15/63, 15/64, 15/82, A01H 1/00, 3/00, 4/00, 5/00		A1	(11) International Publication Number: WO 98/03631 (43) International Publication Date: 29 January 1998 (29.01.98)
(21) International Application Number: PCT/US97/12656 (22) International Filing Date: 17 July 1997 (17.07.97) (30) Priority Data: 08/683,242 18 July 1996 (18.07.96) US		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).	
(71) Applicant: THE SALK INSTITUTE FOR BIOLOGICAL STUDIES (US/US); 10010 N. Torrey Pines Road, La Jolla, CA 92037 (US). (72) Inventors: DOERNER, Peter, W.; 1410 Hornblend, San Diego, CA 92109 (US). LAMB, Christopher, J.; 6444 Farley Drive, San Diego, CA 92122 (US). (74) Agent: HAILE, Lisa, A.; Fish & Richardson P.C., Suite 1400, 4225 Executive Square, La Jolla, CA 92037 (US).		Published <i>With international search report.</i>	

(54) Title: METHOD OF INCREASING GROWTH AND YIELD IN PLANTS**(57) Abstract**

The invention provides a method of producing a genetically modified plant characterized as having increased growth and yield as compared to a corresponding wild-type plant comprising increasing the level of cyclin expression in the plant. Genetically modified plants characterized as having increased growth and yield are also provided.

- 24 -

What is claimed is:

1. A method of producing a genetically modified plant characterized as having increased growth and yield as compared to the corresponding wild-type plant, said method comprising:
 - 5 contacting plant cells with nucleic acid encoding a cyclin protein, wherein said nucleic acid is operably associated with a regulatory sequence, to obtain transformed plant cells;
 - producing plants from said transformed plant cells; and
 - selecting a plant exhibiting said increased yield.
10. 2. The method of claim 1, wherein the genetically modified plant exhibits increased root growth.
3. The method of claim 1, wherein the genetically modified plant exhibits increased shoot growth.
4. The method of claim 1, wherein the cyclin is cyclin A1.
15. 5. The method of claim 1, wherein the regulatory sequence is a promoter.
6. The method of claim 5, wherein the promoter is selected from the group consisting of constitutive promoters and inducible promoters.
7. The method of claim 1, wherein the contacting is by physical means.
8. The method of claim 1, wherein the contacting is by chemical means.